

THE TAXONOMY OF SOME AUSTRAL-NEOZELANIC CYMATIIDAE (MOLLUSCA : GASTROPODA)

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Abstract. A living specimen of *Proxicharonia palmeri* Powell, has been collected at the Poor Knights Islands during a recent expedition. The dentition is compared to *Austrotriton parkinsonia* (Perry) from the same locality, and the taxonomic value of related genera is discussed.

Genus PROXICHARONIA Powell, 1938

- Type-species (OD - Art.67(i) of ICZN) *Charonia*(*Charoniella*)*arthritica* Powell & Bartrum, 1929 (Awamoan, Lower Miocene)
1929. (*Charoniella*) Powell & Bartrum, *Trans.Proc.N.Z. Inst.*,60(3):426 (November, 1929) [non Thiele, 1929, September]
1938. *Proxicharonia* Powell, *Trans.Proc.Roy.Soc.N.Z.*, 68(3):373 (*nom.nov.pro Charoniella* Powell & Bartrum, 1929)

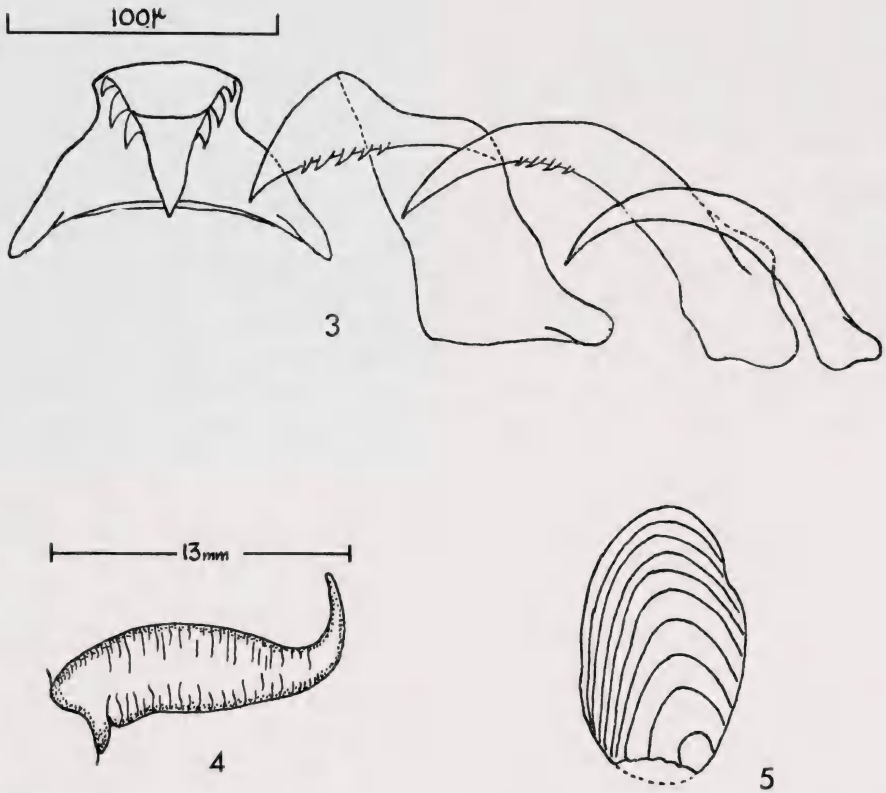
The genus *Proxicharonia* has been established for New Zealand Miocene cymatid species, which are said to differ from species of *Austrotriton* Cossman, in features of more slender shape, narrower and more oval aperture and adpressed varices. Three fossil species are generally assigned to the genus: *Proxicharonia neozelanica* (Marshall & Murdoch, 1923) from Target Gully (Awamoan), *P.clijdenensis* (Finlay, 1924) from Clifden (Altonian) and *P.arthritica*, the type of the genus from Waiheke I. (Otaian) (Fig. 1).

In 1967 Powell described the first living species *Proxicharonia palmeri* (Fig. 2), from 140 feet (42.7 m) at Poor Knights Islands. The description was based on 2 empty shells, and the holotype itself is an immature specimen with feebly developed labial denticles. During the recent Auckland University-Dominion-Auckland Museums expedition to the Poor Knights Islands, a living specimen was obtained from 17-20 fathoms (31.1 - 36.6 m). In the living animal, the sole of the foot is white, the dorsum creamy-fawn, and the sides of the foot, head and penis are speckled with bright yellow; the tentacles are short and stubby and the eyes are small and black.

The radula of *Proxicharonia palmeri* (Fig. 3), has a rhachidian with a massive central cusp and 3 small side-cusps, and a concavely excavated base; the lateral and inner marginal are denticulate on the cutting edge, while the outer marginal is simple. A serrated or simple cutting edge of the lateral and marginals in Cymatiidae, is a variable character, and both types may occur in species of the same genus. The radula pattern of *P.palmeri* is essentially the same in structure as the radula of *Austrotriton parkinsonia* (Perry), and rather similar to *Argobuccinum ranelliformis tumidum* (Dunker) as figured by Powell (1933, fig. 8). The operculum of *P.palmeri* (Fig. 5) has a latero-basal nucleus and is undistinguishable from the operculum of *Austrotriton parkinsonia*. The penis (Fig. 4) is similar in structure to the penial



Fig. 1. *Proxicharonia arthritica* (Powell & Bartrum). Holotype Powell coll. No 3759, Auckl. Inst.Mus.; 50.0 x 26.0 mm. Oneroa, Waiheke I. (Awamoan), Lower Miocene.
 Fig. 2. *Proxicharonia palmeri* Powell. Topotype from 17-20 fathoms, Poor Knights Islands; 50.3 x 23.3 mm.
 Fig. 6. *Austrotriton woodsii* (Tate). Clifton beach, Princetown, Miocene of Victoria Australia. 36.4 x 19.6 mm.
 Fig. 8. *Austrotriton parkinsonia* (Perry). Whangaroa Heads, N.I.; 38.5 x 21.0 mm.
 Fig. 9. *A. parkinsonia* (Perry). Poor Knights Islands, 10 fathoms; 42.8 x 24.9 mm.



Figs. 3 - 5. *Proxicharonia palmeri* Powell. 3. Half-row of radula. 4. penis. 5. operculum.

appendages of *Cabestana*, *Mayena* and *Gyrineum*, but differs prominently from that of *Ranella*. The adult shell of *Proxicharonia palmeri* is orange-brown in colour with white round nodules; the labial lip has 8 prominent denticles, and the columella 15 smaller denticles which extend over the parietal wall to the anal notch; two of these denticles intrude on to the siphonal canal wall. The dimensions of the living specimen were: length 50.3 mm; width 23.3 mm; height of aperture 28.4 mm.

Genus AUSTROTRITON Cossmann, 1903

Type-species (OD) *Triton radialis* Tate, 1888 (Miocene of Sth. Australia)

1903. (*Austrotriton*) Cossmann, Ess. paléoc.comp., 5:98

1931. *Austrosassia* Finlay, Trans.Proc.N.Z.Inst., 62(1):7 (Type-species OD *Septa parkinsonia* Perry, 1811)

When Finlay proposed *Austrosassia* for *Septa parkinsonia*, he segregated the Recent species from the Australian Miocene *radialis-woodsii* (Fig. 6) group of cymatids purely on features of the protoconch, despite the similarities of shell-characters in the two groups. He stressed that the only basis for the classification of the cymatids is the protoconch. Kesteven (1912), in his study of molluscan protoconchs, came to the conclusion that only those characters may safely be used for taxonomic purposes which reflect phylogenetic relationships; the protoconch in its

various forms having arisen from factors other than phylogenetic. It is true indeed that the protoconch will differ at times in the same species, particularly in specimens collected in shallow water of the intertidal zone and those from deeper water, as well as between juveniles and adults of the same species. The development of a species spawn is obviously affected by its environment, and may be retarded or accelerated in shallow or deeper water, with resulting changes in features of the protoconch. The number of liberated veligers, if few or many, is another contributing factor to the final shape of the protoconch in a species, particularly in the Volutidae. Since the type of protoconch tends to be variable in genera, sometimes in species, and also at different stages of development, it cannot be used indiscriminately to segregate species clearly belonging to the same genus-group on characters other than the protoconch. In families where species of the various genera have basically the same type of protoconch, an intrusion of a species with a radically different type of protoconch must be given due taxonomic consideration.

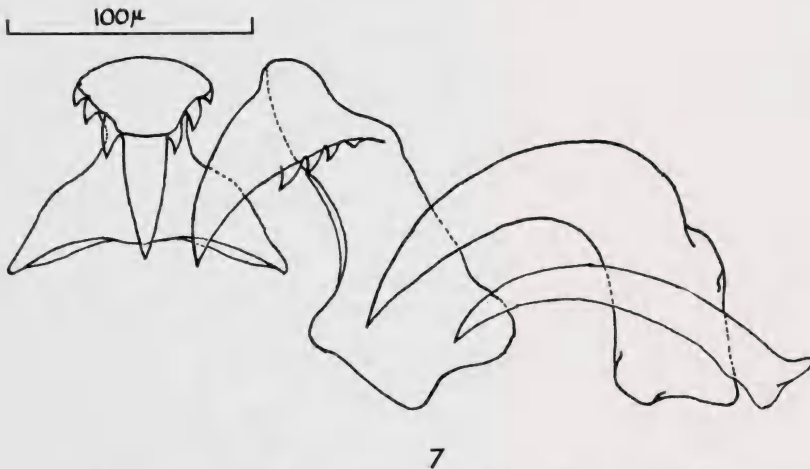


Fig. 7. *Austrotriton parkinsonia* (Perry). Half-row of radula.

The radula of *Austrotriton parkinsonia* (Fig. 7) from the Poor Knights Islands, is basically of the same pattern as the radula of *Proxicharonia palmeri*. This type of radula lacks the concave excavations on the sides of the rhachidian of tropical cymatids. Specimens of *Austrotriton parkinsonia* (Figs. 8, 9) have been measured which equal in slenderness specimens of *Proxicharonia cliffdenensis*, but also exceed the width ratio of *P. neozelanica*. When viewed from a ventral aspect, in species of *Proxicharonia* the outline of the body whorl extending from the presutural ramp to the siphonal fasciole is either moderately flat or slightly concave, but distinctly concave in *Austrotriton*. Species of *Austrotriton* and *Proxicharonia* are sculptured with numerous (40-70 on the body whorl) often finely beaded spiral threads. The aperture may be round, ovate or elliptical, and the siphonal canal straight or offset to the left, in species of both genera. A rather constant segregating feature is the flat, adpressed varices of *Proxicharonia* in contrast to the angulate varices of *Austrotriton*.

Some Austral-Neozelanic cymatid species presently assigned to *Austrotriton* or *Austrosassia*, closely resemble European species of *Sassia* Bellardi, 1873; the

resemblance to the English Eocene *Sassia expansa* (J. de C. Sowerby) and *S. arguta* (Solander), is very close indeed. The relationship of the European *Sassia* to the Austral-Neozelanic *Austrotriton* group remains to be elucidated.

The specific name *parkinsonia* is often found emended to "*parkinsoniana*" or "*parkinsonianum*" in cymatid literature. The specific name *parkinsonia* has been coined by Perry for *J. Parkinson*, and the termination of a taxon based on a personal name remains unchanged.

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